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FM NPIC WASHDC
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BT
S E C R E T. CITE NPIC 3603.
FOR [redacted] AXX-2 THIS INFORMATION IS PROVIDED IN RESPONSE TO YOUR VERBAL REQUEST TO THE DD/NPIC FOR MEETING AN NRO REQUIREMENT BY NOON 23 APRIL 1968. 25X1

1. GIANT SCALE MISSION S008 WAS FLOWN ON 22 APRIL 1968 AND THE FILM WAS PROCESSED AT [redacted] THE MISSION EMPLOYED THE USUAL SENSORS: FIVE OPTICAL, [redacted] THE ONLY MATERIALS EVALUATED ARE THE PRODUCTS FROM THE OPERATIONAL (LEFT AND RIGHT) AND THE TECHNICAL (LEFT AND RIGHT) OBJECTIVE CAMERAS. THE TERRAIN OBJECTIVE CAMERA MATERIAL WAS USED TO DEVELOP AN ACCURATE TRACK OF THE MISSION AND TO DETERMINE THE AREAS OF 75 PERCENT CLOUD FREE PHOTOGRAPHY. SINCE RESOLUTION TARGETS ARE NOT IMAGED, ALL GROUND RESOLUTION FIGURES ARE EMPIRICAL ESTIMATES BASED ON EVALUATIONS OF SIMILAR SENSORS. THE GROUND RESOLUTION FIGURES IMPLY A BAR AND A SPACE, THUS A FIGURE OF [redacted] INDICATES THAT A [redacted] OBJECT COULD BE DETECTED. 25X1 25X1 25X1

2. CLOUDS OBSCURE OR SEVERELY DEGRADE 60 PERCENT OF THE IMAGERY. HAZE WAS A DEGRADING FACTOR ON APPROXIMATELY 20 PERCENT OF THE REMAINING IMAGERY.

3. MISSION S008 PROVIDES THE BEST OVERALL IMAGE QUALITY COMPARED TO PREVIOUS GIANT SCALE MISSIONS. WHERE CLOUDS, HAZE AND OBLIQUITY ARE NOT A DEGRADING FACTOR, THE INTERPRETATION SUITABILITY IS CONSIDERED FAIR TO GOOD. THE BEST GROUND RESOLUTIONS DETECTED IN THE MISSION WERE LOCATED NEAR NADIR. THEY WERE DERIVED FROM THE ORIGINAL NEGATIVES AND ARE AS FOLLOWS:

A. RIGHT OPERATIONAL OBJECTIVE CAMER [redacted] 25X1
B. LEFT OPERATIONAL OBJECTIVE CAMERA
C. RIGHT TECHNICAL OBJECTIVE CAMERA
D. LEFT TECHNICAL OBJECTIVE CAMERA -

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4. ONLY THE ORIGINAL NEGATIVES WERE AVAILABLE FOR THIS EVALUATION.

A. TECHNICAL OBJECTIVE CAMERA MATERIAL: APPROXIMATELY 80 PERCENT OF THE PHOTOGRAPHY WAS ACQUIRED ABOVE 30 DEGREES OBLIQUITY. THE GROUND RESOLUTIONS RANGE FROM GOOD AT NADIR TO POOR IN THE OBLIQUITY ANGLES. NO ATTEMPT IS MADE TO ESTIMATE THE GROUND RESOLUTIONS AT THE HIGH OBLIQUITY ANGLES SINCE MOST OF THIS IMAGERY IS DEGRADED BY ATMOSPHERICS. THE DENSITY AND CONTRAST OF THE NEGATIVES APPEAR ADEQUATE FOR THE AREAS COVERED. A PROCESSING REPORT WAS NOT AVAILABLE AT NPIC. THE DENSITY OF THE OBLIQUE FRAMES RANGE FROM MEDIUM IN THE FOREGROUND TO THIN IN THE BACKGROUND. THERE ARE MINUS DENSITY STREAKS OF UNKNOWN ORIGIN PARALLEL TO THE MAJOR AXIS AND SPACED 0.25 INCH APART ACROSS THE ENTIRE FORMAT OF ALL FRAMES THROUGHOUT THE MISSION.

(1) LEFT TECHNICAL OBJECTIVE CAMERA (AL), S/N 64-07. PLUS DENSITY STREAKS LOCATED 2.0 INCHES FROM BOTH EDGES OF THE FILM RECUR FREQUENTLY THROUGHOUT THE MISSION. EDGE STATIC, CAUSED BY ELECTRICAL DISCHARGES, IS PRESENT ALONG BOTH EDGES OF THE NEGATIVE. BANDING, PARALLEL TO THE MINOR AXIS OF THE FILM, CAN BE DETECTED THROUGHOUT THE MISSION; IT IS READILY APPARENT IN AREAS OF NEUTRAL DENSITY (WATER, CLOUDS, ETC.) BUT CAUSES NO DETECTABLE DEGRADATION TO THE GROUND IMAGERY. SEVERAL EMULSION LIFTS AND SMALL CIRCULAR MINUS DENSITY SPOTS ARE LOCATED WITHIN FRAMES 33

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CMA

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AND 34. PINHOLES IN THE EMULSION CAN BE DETECTED IN FRAMES 351 THROUGH 353. SMALL PARTICALES OF FOREIGN MATTER WERE EITHER ON THE EMULSION OR IN THE CAMERA HOUSING WHEN FRAMES 544 THROUGH 546 WERE EXPOSED. HEAT SPLICES ARE LOCATED BETWEEN THE FOLLOWING FRAMES: 002/003, 592/593, 600/601 AND 602/603. CAMERA OFF/ONS WITH ASSOCIATED FOGGED AREAS, INDUCED BY MINOR LIGHT LEAKS, OCCUR BETWEEN FRAMES 203/204, 234/235, 716/717, 842/843, 1090/1091, AND 1114/1115. FRAME TITLING WAS IN ERROR AS INDICATED BY MESSAGE 0 232345Z APR 68 [redacted] 25X1
[redacted] 25X1
THE LAST TITLED FRAME OF THE LEFT TECHNICAL OBJECTIVE CAMERA MATERIAL IS FRAME 1292.

(2) RIGHT TECHNICAL OBJECTIVE CAMERA (AR), S/N 64-06: THERE ARE RANDOM MINUS DENSITY STREAKS PARALLEL TO THE MAJOR AXIS OF THE FILM THROUGHOUT THE ENTIRE MISSION. EMULSION LIFTS ARE PRESENT IN FRAMES 4, 5, 6, 25, 39, 471 AND 472. SMALL PARTICLES OF FOREIGN MATTER WERE EITHER ON THE EUMULSION OR IN THE CAMERA HOUSING WHEN FRAMES 44 THROUGH 55 WERE EXPOSED. AN ULTRASONIC SPLICE IS LOCATED IN FRAME 69 AND HEAT SPLICES ARE LOCATED BETWEEN FRAMES 600/601 AND 1200/1201. FRAME 601 CONTAINS A MYLAR REPAIR SPLICE. CAMERA OFF/ONS OCCUR BETWEEN THE FOLLOWING FRAMES: 277/278, 857/858, AND 1106/1107. THE LAST TITLED FRAME OF THE RIGHT TECHNICAL OBJECTIVE CAMERA MATERIAL IS FRAME 1256.

B. OPERATIONAL OBJECTIVE CAMERA MATERIAL: THIS MATERIAL PROVIDES GROUND RESOLUTIONS OF [redacted] AT NADIR. THE LEFT 25X1
CAMERA PROVIDES THE BETTER RESOLUTIONS. THE RIGHT CAMERA MATERIAL IS SLIGHTLY DEGRADED AT NADIR AS EXPLAINED IN SUBSEQUENT PARAGRAPHS. THE DENSITY AND CONTRAST OF THE NEGATIVES APPEAR ADEQUATE. THE TIMING DOTS ON THE FILM FROM BOTH CAMERAS BEGIN 0.75 INCH AFTER THE START OF SCAN AND EXTENT THE SAME DISTANCE BEYOND THE END OF SCAN. FOGGING, ASSOCIATED WITH THE ILLUMINATION OF THE DATA CHAMBER, ENCROACHES APPROXIMATELY 0.25 INCH INTO THE IMAGERY OF ALL FRAMES.

(1) LEFT OPERATIONAL OBJECTIVE CAMERA (CL), S/N 4005: THIS CAMERA IS THE SAME CAMERA USED ON MISSION 5004. THE EVENTS COUNTER HAS A BIAS OF MINUS SIX WITH THE TITLED FRAME NUMBER. CAMERA OFF/ONS, WITH ASSOCIATED FRAME OVERLAP, OCCUR BETWEEN FRAMES 831/832 AND 1881/1882. A FINE MINUS DENSITY STREAK, PARALLEL TO THE MAJOR AXIS OF THE FILM, IS PRESENT BUT CAUSES ONLY MINOR DEGRADATION. THERE IS A SPLICE BETWEEN FRAMES 1050/1051. BANDING, PARALLEL TO THE MINOR AXIS, IS PRESNET IN FRAMES 1576 THROUGH 1598. THE BANDING STARTS AT THE BEGINNING OF SCAN AND EXTENDS HALFWAY THROUGH THE FRAME; IT IS READILY DETECTABLE IN NEUTRAL AREAS AND CAUSES NO DETECTABLE DEGRADATIONS TO THE GROUND IMAGERY. THE LAST TITLED FRAME OF THE LEFT OPERATIONAL OBJECTIVE CAMERA MATERIAL IS FRAME 2163.

(2) RIGHT OPERATION OBJECTIVE CAMERA (CR), S/N 4016: THE EVENTS COUNTER HAS A BIAS OF MINUS FIVE WITH THE TITLED FRAME NUMBER. THE FIRST FIVE TITLED FRAMES ARE BLANK AND APPEAR TO BE PART OF THE PREFLIGHT MATERIAL. CAMERA OFF/ONS, WITH ASSOCIATED FRAME OVERLAP, OCCUR BETWEEN FRAMES 842/843 AND 1910/1911. NUMEROUS FINE MINUS DENSITY LINES ARE PRESENT PARALLEL TO THE MAJOR AXIS OF THE FILM BUT CAUSE NO APPARENT IMAGE DEGRADATION. A SPLICE IS PRESENT BETWEEN FRAMES 2089/2090. THE FIRST 0.25 INCH OF SCAN (NEAREST NADIR) IS SEVERELY DEGRADED AND APPEARS OUT OF FOCUS. THE NEXT 0.75 INCH ALSO APPEARS OUT OF FOCUS BUT TO A LESSER DECREE. THE REMAINDER OF THE FRAME IS TYPICAL FOR IMAGERY ACQUIRED AT THOSE SCAN ANGLES. THE LAST

TITLED FRAME OF THE RIGHT OPERATIONAL OBJECTIVE CAMERA MATERIAL IS FRAME 2197.

5. MISSION RECORDER SYSTEM (MRS) CORRELATION: THE GREENWICH MEAN TIME IN THE MRS HAS A PLUS 24 HOUR BIAS FOR ALL CAMERAS (EXAMPLE: 032155 READS 272155). MRS DATA WAS NOT RECEIVED FOR THE FIRST SEVEN RIGHT TECHNICAL OBJECTIVE FRAMES NOR FOR EIGHT TECHNICAL OBJECTIVE CAMERA FRAMES FROM GMT 045237 TO GMT 052519. THESE TIMES CORRESPOND TO THE LEFT TECHNICAL OBJECTIVE FRAMES 297 TO 1116 AND RIGHT TECHNICAL OBJECTIVE FRAMES 322 TO 1106.

A. TECHNICAL OBJECTIVE CAMERA: A GOOD CORRELATION WAS ACHIEVED FOR THE MRS DATA RECEIVED. THE RIGHT TECHNICAL OBJECTIVE CAMERA NEGATIVES CORRELATE WITH THE MRS IN BOTH FRAME NUMBERS AND GMT. THE CLOCK ON THE LEFT TECHNICAL OBJECTIVE CAMERA NEGATIVES SHOWS A MINUS FOUR SECOND BIAS (IN ADDITION TO THE 24 HOUR BIAS). THE FIRST 234 FRAMES OF THE LEFT TECHNICAL OBJECTIVE CAMERA CORRELATES WITH THE MRS; HOWEVER, THERE ARE THREE ERRONEOUS LINES OF DATA AFTER FRAME 234. THE MRS SHOWS A PLUS THREE LINE BIAS FROM FRAME 238 TO THE END OF THE MISSION MATERIAL.

B. OPERATIONAL OBJECTIVE CAMERAS: A FAIR CORRELATION WAS ACHIEVED. THE CLOCK RECORDED BY THE LEFT OPERATIONAL OBJECTIVE CAMERA SHOWS A MINUS THREE SECOND BIAS THROUGHOUT THE MISSION. THE CLOCK RECORDED BY THE RIGHT OPERATIONAL OBJECTIVE CAMERA DOES NOT SHOW A CONSTANT BIAS. IT APPEARS TO HAVE A PLUS SEVEN BIAS AT THE BEGINNING OF THE MISSION WHICH GRADUALLY INCREASES TO A PLUS 11 SECOND BIAS AT THE END OF THE MISSION.

6. TIME DID NOT PERMIT THE USUAL THOROUGH EVALUATION OF THE MATERIAL. ALL 6907 FRAMES FROM THE OPERATIONAL AND TECHNICAL OBJECTIVE CAMERAS WERE VIEWED AND A PERFUNCTORY PHOTO/MRS/PLOT CORRELATION WAS PERFORMED. A MORE THOROUGH EVALUATION WOULD NOT SUBSTANTIALLY CHANGE THE CONCLUSIONS BUT WOULD PROVIDE GREATER DEPTH AND A BETTER COMPARISON WITH THE MATERIALS FROM PREVIOUS MISSIONS.

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END OF MESSAGE